NATURAL RESOURCES CONSERVATION SERVICE

CONSTRUCTION SPECIFICATIONS

TREE/SHRUB ESTABLISHMENT

1. Scope

The work shall consist of establishing woody vegetation by planting seedlings, direct seeding, or natural regeneration and by performing the necessary maintenance to ensure this practice functions as designed. This specification (including references made within to other Conservation Practice Standards and Technical Notes), and the Kansas Tree/Shrub Planting Field Sheet (Form KS-ECS-5) shall be used to design the practice. Practice application will be documented on the Tree/Shrub Planting Field Sheet (Form KS-ECS-5) and in the conservation plan.

2. Species Selection

Species will be adapted to soil site conditions (see Kansas Field Office Technical Guide (FOTG), Section II, Forestland and Windbreak Interpretations) and suitable for the planned purpose (see Table 1).

3. Planting Sites

Cut-over forest land. Cut-over forest is that which most or all of the merchantable timber has been cut or harvested. Planting cut-over forest is generally for the purpose of supplementing natural reproduction, speeding up the stocking process, or increasing the number of desirable species.

Land conversions. Sites no longer desired for crop production or pasture or areas too small for large equipment, may be desirable for forest products. Severely eroded sites may not be desirable for hardwood timber production; however, these sites may be desirable for firewood or fence post plantings.

Inter-planting in forest land. Inter-planting is for the purpose of introducing desirable species in a stand of inferior species or for filling voids in an existing forest stand. Black walnut may be successfully planted in small openings in forest lands on suitable sites. The distance across openings should be a least two times the height of adjacent dominant trees. Use species that are shade tolerant such as northern red oak, hackberry, hickory, and silver maple for plantings in smaller openings. Less desirable tree species may be removed to provide needed light and space.

4. Species Spacing

The spacing of trees and shrubs will be related to the planned purpose. Suggested spacing is as follows:

- Gully control, erosion control, or stream bank stabilization—2 by 2 feet or 3 by 3 feet.
- Christmas trees—5 by 5 feet minimum. Spacing between rows should vary to accommodate equipment. Spacing should be arranged to obtain 900 to 1,200 trees per acre.
- Wood products (walnut, other sawlogs, or firewood)—8 by 8 feet or wider up to 15 by 15 feet.
- Nut production—35 by 35 feet or wider.
- Beautification (Aesthetics)—varied spacing. Should be according to a landscape plan.
- Conservation Practice Standards 380, Windbreak/Shelterbelt Establishment; 442, Hedgerow Planting; and 391, Riparian Forest Buffer, plantings—see appropriate specifications for spacing recommendations.

The following table gives the number of trees per acre for various spacing:

Tree Spacing—Number of Trees per Acre

Spacing (feet)	Square feet per Tree	Number of Trees per Acre
2 x 2	4	10,890
5 x 5	25	1,742
6 x 6	36	1,210
8 x 8	64	680
10 x 14	140	311
12 x 12	144	302
12 x 16	192	227
14 x 14	196	222
10 x 20	200	218
35 x 35	1,225	36

5. Planting Details

Specific planting requirements for site preparation, proper stock handling techniques, establishment methods, and survival percentages are provided in Kansas Forestry Technical Note KS-9.

6. Maintenance Details

Maintenance requirements are provided in Kansas Forestry Technical Note KS-9.

TABLE 1. GENERAL LISTING OF SPECIES FOR VARIOUS PURPOSES

SPECIES	WOOD CROP PLANTING	CHRISTMAS TREE PLANTING	FUEL WOOD PLANTING	FENCEPOST PLANTING	NUT PLANTING	WILDLIFE PLANTING	WINDBREAK PLANTING	EROSION CONTROL
SHRUBS								
American Plum						X	X	X
Choke cherry						X	X	
Common ninebark						X	X	
Fragrant sumac						X	X	
Golden currant						X	X	
Lilac						X	X	
Cotoneaster						X	X	
Sand hill plum						X	X	X
DECIDUOUS TREES								
Baldcypress							X	
Black locust			X	X		X		X
Black walnut	X		X		X	X	X	
Bur oak	X		X	X	X	X	X	
Chinquapin oak			X		X	X	X	
Cottonwood	X		X			X	X	
Green ash	X		X				X	
Hackberry	X		X			X	X	
Hickory			X		X			
Honey locust			X				X	
Lacebark elm			X				X	
Northern red oak	X		X				X	
Osage orange			X	X				
Pecan	X				X	X		
Redbud							X	
Russian mulberry			X			X	X	
Siberian elm			X				X	
Silver maple	X		X				X	
Sycamore						X		
EVERGREEN TREES								
Austrian pine		X				X	X	
Eastern red cedar				X		X	X	
Eastern white pine		X						
Or+A20iental arborvitae						X	X	
Ponderosa pine		X				X	X	
Scotch pine*		X				X	X	

* Susceptible to pine wilt.